



Advancing GI Patient Care 2021

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Advances in Diagnostic and Therapeutic Endoscopy

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Disclosure Statement

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Faculty Disclosures

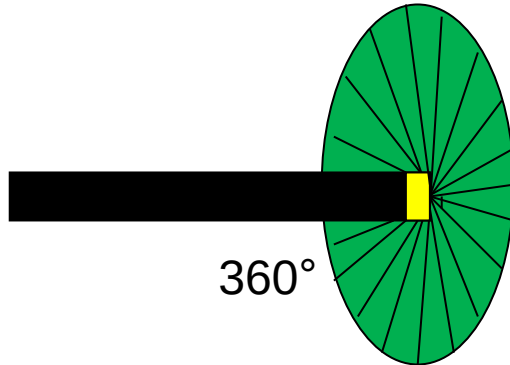
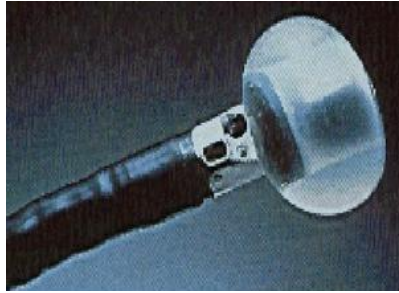
Jayaprakash Sreenarasimhaiah, MD, FACG

- Speakers Bureau – Abbvie Pharmaceuticals

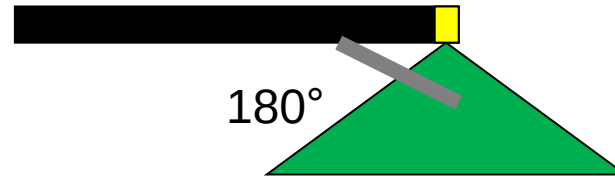
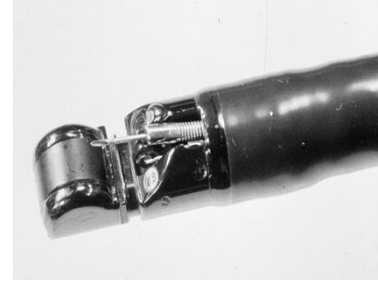
Overview

- Advances in Interventional EUS
 - FNA and FNB biopsy
 - Celiac plexus neurolysis
 - Cyst-gastrostomy/necrosectomy
 - EUS-guided biliary and pancreatic access
 - EUS guided treatment of cholecystitis
 - EDGE procedure
 - Pelvic abscess drainage

EUS Technical Aspects



Radial sector scanner



Curvilinear array scanner

FNA and FNB

- 22G and 25G needle with onsite cytology
- 19G fine needle biopsy
 - Liver biopsy (portal triads, architecture)
 - Spindle cell tumors, GISTs
 - Autoimmune pancreatitis and IgG4 stains
 - Lesions with nondiagnostic FNA
 - 0.035inch guidewire passage



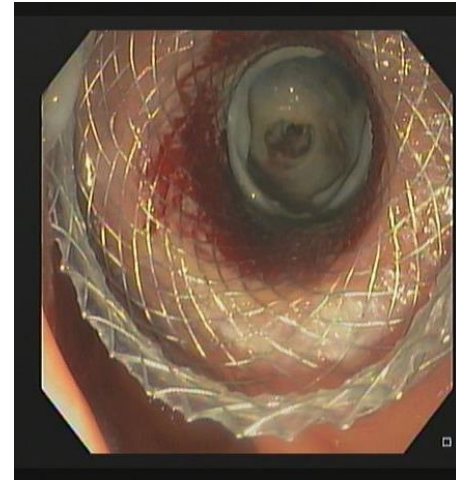
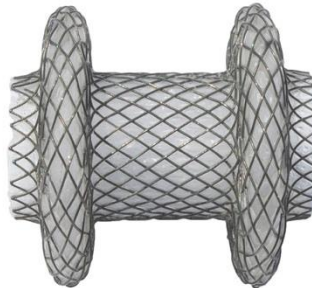
Celiac Plexus Block



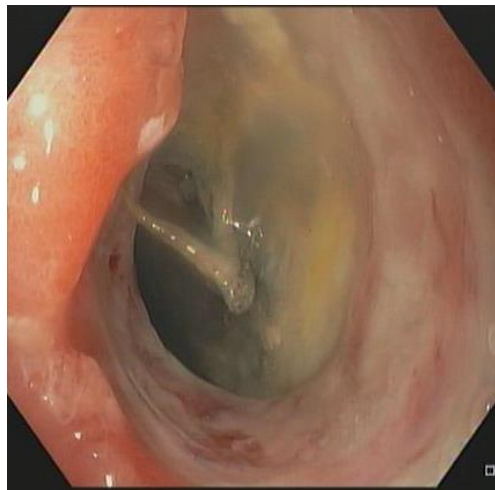
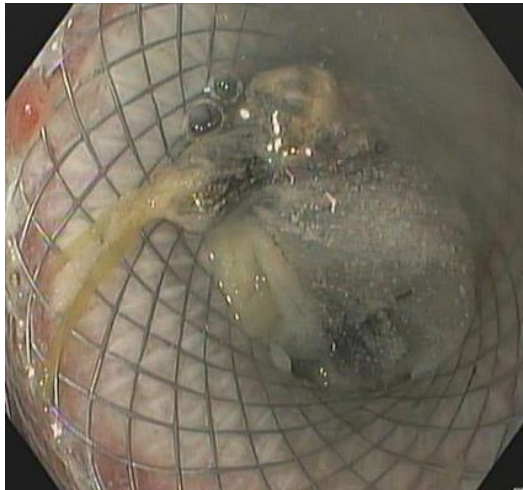
- Celiac plexus comprised of:
 - Celiac ganglion
 - Dense network of nerve fibers
 - Post to stomach and omental bursa, anterior
- CPN for pancreatic cancer
 - Injection of ethanol 95%
 - 73% for reduction in narcotic use
- CPB for chronic pancreatitis
 - Injection of bupivacaine 0.5% + triamcinolone
 - 52% for reduction in narcotic use
 - Requires repeat treatments within 1–6 mos

EUS-Guided PFC Drainage

- Pancreatic fluid collections – pseudocysts and walled-off necrosis
- LAMS



EUS-Guided Necrosectomy



EUS-Guided Necrosectomy

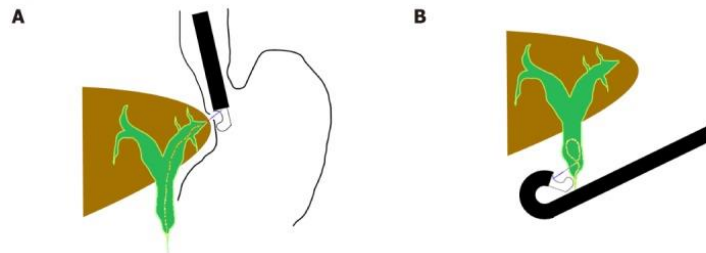
- Endoscopic drainage (ED) v percutaneous drainage (PD)
 - ED resulted in faster resolution of walled off necrosis – 30.9 days v 61 days ($p < 0.005$)
 - ED resulted in less need for surgery – 30% v 4% ($p < 0.005$)
 - ED with no concerns for pancreato-cutaneous or entero-pancreatic fistulas

EUS-Guided Necrosectomy

- Endoscopic drainage (ED) v surgical drainage (SD) in infected necrosis
 - Randomized – 34 to ED, 32 to SD
 - No difference in mortality 8.6% v 6.3%
 - ED had less complications (fistulas, bleeding, strictures) – 0.15 v 0.69/patient
 - 3 month QOL scores higher with ED
 - Cost less with ED overall - \$75830 v \$117492

EUS-Guided Biliary Drainage

- Options for biliary drainage when ERCP fails:
 - Percutaneous drainage
 - Surgery
- Endoscopic therapy
 - Linear EUS scope visualizes left hepatic ducts (from stomach) and distal CBD (from duodenum)
 - Puncture across intestinal lumen
 - Two types of therapy
 - A. Rendezvous
 - B. Transmural drainage



EUS-Guided Biliary Drainage

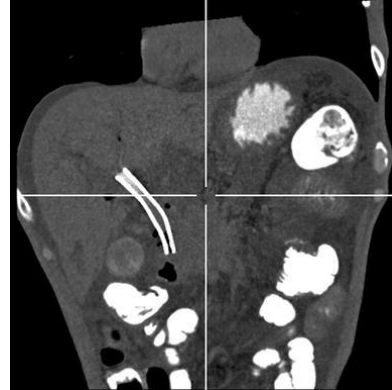
- Meta-analysis of 23 studies with 1437 pts
- Total of 1444 procedures
- Average age 67 yrs, 56% male
- Pooled technical success rate of 91.5%, clinical success rate 87.5%
- Adverse event rate 17.9%
 - Bile leak 4.1%
 - Stent migration 3.9%
 - Infection 3.8%
- Conclusion – EUS-BD is a safe alternative to difficult ERCP in malignancy within same procedure

EUS-Guided Biliary Drainage

- 81-year-old woman with CAD, CABG, COPD, weight loss, colon cancer
- Incidental jaundice during workup, Tbil 16
- CT showed pancreas head mass and dilated intra- and extra-hepatic ducts
- FNA-proven adenocarcinoma with vascular and duodenal invasion



EUS-BD

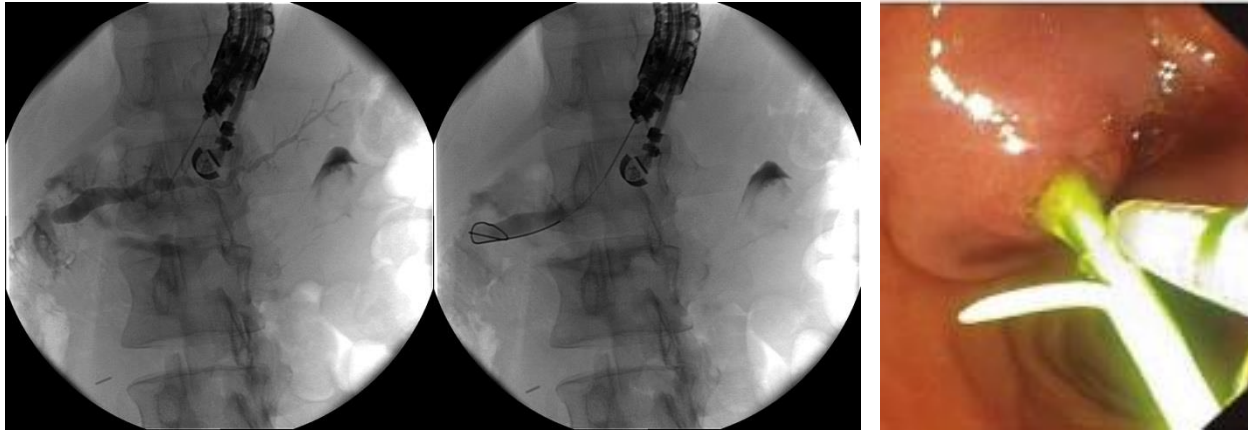


EUS-Guided Pancreatic Duct Access

- Utilized in sig obstruction of the PD from stricture, post-surgery such as Whipple, obstructive stones
- Antegrade method – PD stent from gastric, duodenum or jejunum
- Retrograde method – rendezvous with PD stent after wire crosses papilla
- Study of 75 pts
 - 40 normal anatomy, 35 altered anatomy
 - 70% technical success rate
 - 36% adverse event rate (mild pancreatitis, hematoma)
 - All patients with successful stent placement had resolution of symptoms

EUS-Guided Pancreatic Duct Access

- 39-year-old woman with symptomatic focal pancreatic duct stricture from prior recurrent pancreatitis and resolved pseudocyst
 - Unable to access from ampulla



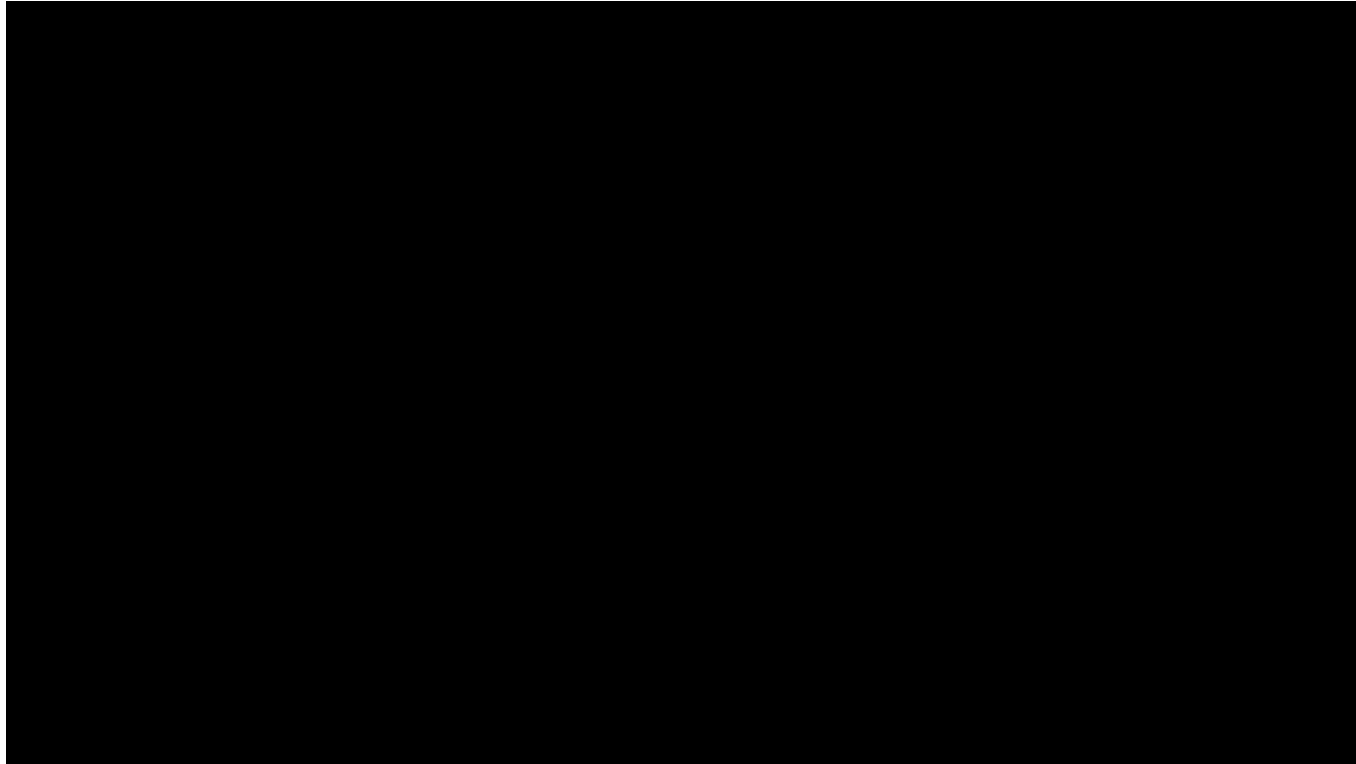
EUS Therapy for Cholecystitis

- Advantages to transmural over transpapillary approach
 - Avoid potential pancreatitis related to cannulation
 - No limitation by cystic duct configuration
- Advantages to transmural over percutaneous approach
 - Avoid complications such as hematoma or pneumothorax
 - Ability to drain in setting of perihepatic ascites
 - Avoid traction-induced tube slippage by coiling significantly into gallbladder and add slack in duodenum/stomach
 - Prevent inadvertent removal of drain externally

EUS Therapy for Cholecystitis

- Meta-analysis of EUS-GBD with LAMS
 - 235 pts
 - 94% technical success, 92.5% clinical success
 - 8% adverse events (perforation, stent obstruction and recurrent cholangitis)
- Meta-analysis of EUS-GBD v PT-GBD
 - 495 pts among 5 studies
 - No difference in technical or clinical success
 - No difference in adverse events
 - Lower pain score for EUS-GBD
 - Reintervention rates higher for PT-GBD (OR 4.3)

EUS-Guided GB Drainage



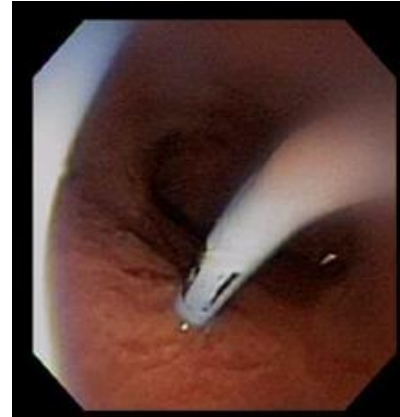
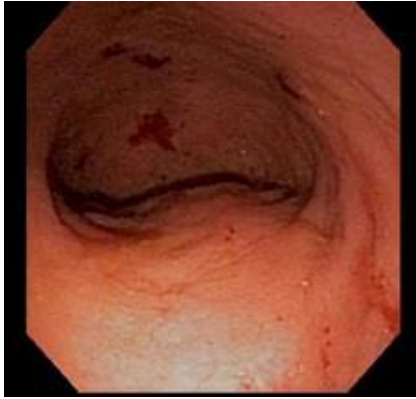
EUS-Guided Pelvic Abscess Drainage

- First described in 2003
- Most pelvic abscesses adjacent to rectum/left colon
- Systematic review and meta-analysis of 8 studies with 135pts
 - Pigtailed stents in 100pts
 - LAMS in 23pts
 - EUS-FNA only in 12pts
 - Technical success in 100%, clinical success in 92%
 - Adverse effects in 9% (mostly stent migration)

EUS-Guided Pelvic Abscess Drainage

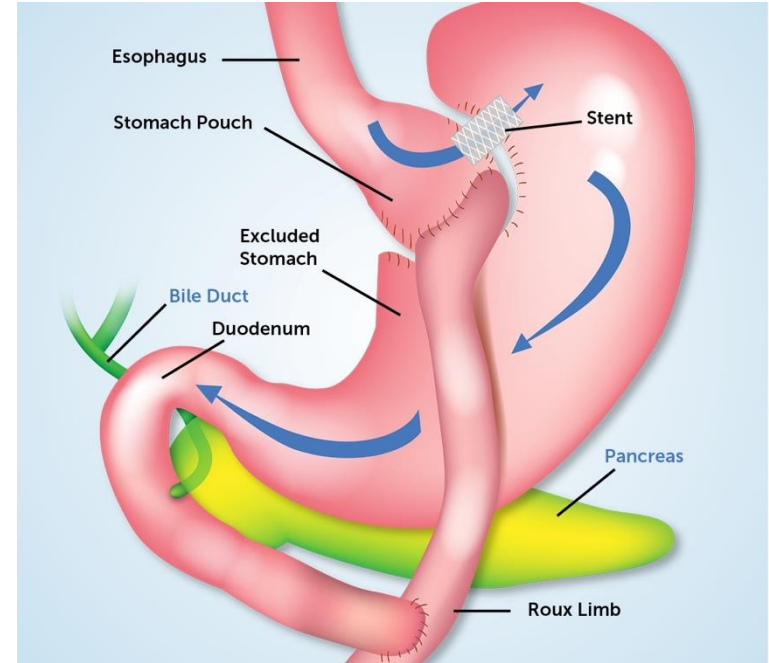
- 17-year-old male with acute RLQ abdominal pain and fever
- Acute abdomen
- Emergent laparotomy – ruptured appendix
- Evacuation, external drain
- 10 days later, still with pain, fevers
- CT – 5 x 6cm fluid collection in pelvis near rectum/bladder
- Unable to reach percutaneously

EUS-Guided Pelvic Abscess Drainage



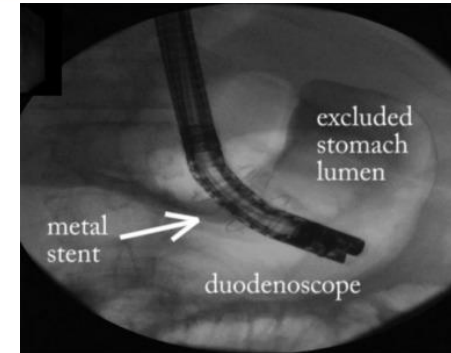
EDGE Procedure

- EUS-directed transgastric ERCP
- RYGBP patients
- Puncture into remnant stomach with 19G needle – instill 120mL
- LAMS of 15 – 20mm size placed
- Return in 1 – 2 weeks for standard ERCP
- Removal of LAMS



EGDE Procedure

- 178 patients (mean 58%, 79% women)
- Technical success 98% (175/178)
- Mean procedure time of 92mins
- 15% mild adverse events (periprocedural)
- 2% severe adverse events (4 pts all requiring laparoscopy)
- 10% fistula rate (most closed endoscopically, none surgically)



Other Applications/Future Directions

- Enhanced tissue acquisition with FNB
- Delivery of anti-tumor therapy directly into lesions
- Visualization outside of standard GI lumen to create anastomosis (bariatrics, etc)
- Vascular embolization and coil delivery (gastric varices, etc)

